

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference G69016.GE.cp	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/11397	International filing date (day/month/year) 15.10.2003	Priority date (day/month/year) 31.10.2002
International Patent Classification (IPC) or both national classification and IPC B65D41/62		
Applicant ENOPLASTIC S.P.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 25.05.2004	Date of completion of this report 03.02.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Bevilacqua, V Telephone No. +49 89 2399-7983



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP 03/11397

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1, 2, 5-10 as originally filed
3, 3bis, 4 received on 08.10.2004 with letter of 07.10.2004

Claims, Numbers

1-14 received on 08.10.2004 with letter of 07.10.2004

Drawings, Sheets

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-14
	No: Claims	
Inventive step (IS)	Yes: Claims	1-14
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. State of the art

Reference is made to the following documents:

- D1: US-A-3 924 771 (CLEFF GUNTHER) 9 December 1975 (1975-12-09)
- D2: GB- 718 226 A (NAAMLOZE VENNOOTSCHAP WH VAN DEN TOORN'S INDUSTRIEEL CAPSULEFABRIEK) 10 November 1954 (1954-11-10)
- D3: US 2002/003121 A1 (QUERBACH PETER ET AL) 10 January 2002 (2002-01-10)

2. Novelty

The document D1 is regarded as being the closest prior art to the subject-matter of independent claim 1, and discloses (the references in parentheses applying to this document, see in particular from column 2 line 60 to column 3 line 68, from column 6 line 3 to column 7 line 6 and figure 12):

a method for forming a closure and security device comprising a screw stopper (16) and a security capsule (1) and applying it to containers provided with an externally threaded circular mouth (110), the method comprising the following steps:

- connecting to a metal stopper destined to become a screw stopper once applied to the container a capsule forming foil in such a manner as to provide the stopper with a skirt projecting by a determined portion from the free edge of the stopper to obtain a stopper-skirt combination
- applying the stopper-skirt combination to the mouth of the relative container
- making the skirt rigid with the container by known capsule techniques depending on the type of foil used, to obtain a stopper-capsule.

The subject-matter of claim 1 therefore differs from this known method in that: it additionally comprises the step of rolling the stopper to form on its lateral wall a thread matching the external thread on the mouth of the container.

The subject-matter of independent claim 1 is therefore novel (Article 33(2) PCT).

3. Inventive step

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D1 discloses a method from which the subject-matter of claim 1 differs in that the step consisting of applying the stopper skirt combination to the mouth of the container comprises rolling the stopper to form on its lateral wall a thread matching the external thread on the mouth of the container.

The problem to be solved by the present invention may therefore be regarded as how to perform the known method by using for the stopper skirt combinations a filling and closing line already used for common capsules without a thread.

The solution proposed in claim 1 of the present application is to be considered as involving an inventive step (Article 33(3) PCT) because all the relevant documents cited in the search report disclose methods for combining a skirt with a rigid, non-deformable stopper, which is always shown as having a thread already formed (made of plastic or of metal), starting from D1 or D2 the skilled person would never take into account to deform the stopper once the skirt has been connected thereto.

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already in the form of a tubular element, and is applied to the mouth of bottles (especially containing wine) which have already been closed by a conventional cork or synthetic stopper, or (as in the aforesaid case) by a screw stopper with ring. The tubular element is also provided with a metal or plastic "headpiece" which closes it upperly to form a hood and is then made to adhere, by rolling or by heating (depending on whether the foil is of metal or of heat-shrinkable plastic material), to the relative portion of the bottle neck.

In all cases an intact capsule is the guarantee that the bottle contents have not been tampered with or replaced.

10 Returning to the aforesaid known case of a closure device provided with both a screw stopper with ring and a capsule, it is the intactness of this latter (and not of the teeth on the ring of the screw stopper) which provides the guarantee that the container has not been tampered with.

Although this latter solution provides a guarantee against tampering of the container contents, it means that two separate independent operations have to be performed on the automatic container filling and closure line (in the case of bottles, the so-called bottling line), namely the application of the screw stopper with ring to the threaded mouth of the container and the subsequent application of the capsule to this stopper, the capsule then being made rigid by rolling or by heat shrinkage (depending on whether it is of metal or heat-shrinkable plastic material). The need to perform the two aforescribed operations one after the other evidently results in a considerable lengthening of the bottling time and a non-negligible increase in production costs. It should

also be noted that to open a container provided with such a closure and security device, the capsule must firstly be removed. This is difficult, or even impossible, if using the hands alone. Consequently an implement such as a knife has normally to be used.

In this respect, this drawback can be overcome by using a capsule provided with a pull tab, i.e. a strip incorporated into the capsule and having a projecting end which when pulled manually tears the capsule, which can then be easily removed with the hands. The pull tab represents however an additional cost.

An object of the present invention is to provide a method which enables a closure and security device comprising a screw stopper and capsule to be formed and applied to containers with an externally threaded circular mouth,

3BIS

US-A-3 924 771 discloses a threaded closure-member, or stopper, which can be screwed on the threaded neck of a bottle. A cap wall, or skirt, made of shrinkable foil material, is then applied to the stopper and also to the adjacent bottle-neck portion, the stopper being already screwed to the bottle neck. Subsequently, by
5 heating, the skirt shrinks, thereby adhering to the stopper and bottle neck.

GB 718 226 A discloses a threaded metal cap, or stopper, to be also screwed on the threaded neck of a bottle before a skirt is fixed to the stopper by an adhesive.

in considerably less time (with significant benefit to production costs) than the
aforedescribed known method in which the screw stopper and capsule are
applied to the container in two successive steps.

Another object of the invention is to provide a closure and security device of
5 the aforesaid type which does not present the aforedescribed drawbacks of
closure devices with a screw stopper provided with a security ring.

The initially stated object is attained by the method ^{according to claim 1.} ~~of the present invention,~~
comprising the following steps:

connecting to a screw stopper, or to a stopper destined to become a screw
10 stopper once applied to the container, a capsule-forming foil in such a manner
as to provide the stopper with a skirt projecting by a determined portion from
the free edge of the stopper, to obtain a stopper-skirt combination;

applying the stopper-skirt combination to the mouth of the relative container;
...making the skirt rigid with the container by known capsule techniques,
15 ~~depending on the type of foil used, so as to obtain a stopper capsule.~~

In this manner the stopper-capsule can be applied to the relative container in a
significantly less time than the time required in the known method, which
firstly applies the screw stopper and then the capsule.

It should be noted that hereinafter, unless otherwise specified, the term "screw
20 stopper" also indicates a stopper which is not yet a screw stopper, but is
destined to become a screw stopper (for example, by rolling in the case of a
metal stopper).

It is also important to note that the method of the invention can be
implemented by using a dispensing device for the stopper-skirt combinations
25 which is of the type currently already used for known capsules, and which can
be used on nearly all existing automatic filling and closing lines without these
latter being penalized in terms of their production capacity, as instead happens
in the case of the known method in which the screw stopper and the capsule
are applied in two successive steps.

30 If the stopper is of metal, it is conveniently initially without the thread, the
aforesaid step of the method consisting of applying the stopper-skirt
combination to the mouth of the relative container necessarily comprising in
this case rolling the stopper to form on its lateral wall a thread matching the
external thread of the container mouth.

35 If however the stopper is of plastic material and already presents the internal

CLAIMS

1. A method for forming a closure and security device (22) comprising a screw stopper (10A) and a security capsule (16A) and applying it to containers provided with an externally threaded circular mouth, the method comprising
5 the following steps:

connecting to a metal stopper destined to become a screw stopper once applied to the container (20), a capsule-forming foil (12) in such a manner as to provide the stopper (10) with a skirt (16) projecting by a determined portion from the free edge of the stopper (10), to obtain a stopper-skirt combination
10 (18; 18A; 18B);

applying the stopper-skirt combination (18; 18A; 18B) to the mouth of the relative container (20);

making the skirt (16) rigid with the container (20) by known capsule techniques, depending on the type of foil used, to obtain a stopper-capsule
15 (22);

characterized in that, before making the skirt (16) rigid with the container (20), the stopper (10) is rolled to form on its lateral wall a thread matching the external thread on the mouth of the container (20).

2. A method as claimed in claim 1, wherein the foil used to form the skirt is
20 in the form of substantially trapezoidal foil pieces (12).

3. A method as claimed in claim 1, wherein the foil used to form the skirt (16) is in the form of tubular elements.

4. A method as claimed in claim 1, wherein the foil used to form the skirt (16) is metallic.

- 25 5. A method as claimed in claim 1, wherein the foil used to form the skirt (16) is of a heat-shrinkable plastic material.

6. A method as claimed in claim 4, wherein the skirt (16) and stopper (10) are made mutually rigid by gluing.

7. A method as claimed in claim 5, wherein the skirt (16) and stopper (10)
30 are made mutually rigid by heat-shrinkage and/or gluing.

8. A method as claimed in claim 5, wherein the step consisting of making the skirt (16) rigid with the container (20) comprises heating the skirt (16) to cause it to heat-shrink.

9. A method as claimed in claim 4, wherein the step consisting of making
35 the skirt rigid with the container comprises rolling.

10. A method as claimed in claim 4, wherein the foil (12) is of aluminium or tin.
11. A method as claimed in claim 4, wherein the foil (12) is a poly laminate.
12. A method as claimed in claim 1, wherein the foil (12) used presents
.5 means (24) which, with the closure and security device (22) applied to the container (20), enable the relative capsule (16A) to be torn as a result of or prior to the unscrewing of the screw stopper (10A).
13. A method as claimed in claim 12, wherein the means which enable the capsule (16A) to be torn consist of using a foil (12) of a thickness which
10 enables the capsule (16A) to tear when the screw stopper (10A) is unscrewed.
14. A method as claimed in claim 12, wherein the means which enable the capsule (16A) to be torn consist of using a foil (12) presenting one or more weakening lines or zones (24), in correspondence with which tearing of the capsule (16A) takes place when the stopper (10A) is unscrewed.

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